Questions and Answers - West Lake Landfill Site, Bridgeton, Missouri

Groundwater

Q: Since groundwater test results published in December 2012 show that there are already higher than background levels of radioactive materials in many of the monitoring wells, if new testing shows no radioactivity at these same wells, doesn't that prove that the groundwater contamination is mobile?

A: EPA assesses the 2012 groundwater data as not proving or disproving the existence of a groundwater contaminant plume at the site. For this reason, EPA has requested that the potentially responsible parties (PRPs) conduct three additional rounds of groundwater sampling in 2013, which will enable the U.S. Geological Survey (USGS) to provide a more comprehensive picture of current groundwater conditions at the site.

Q: While some at the EPA have stated that the levels of radioactivity in the groundwater as of mid-2012 are, in many of the monitoring wells, within drinking water standards and slightly above in others, and, according to the NRC (1988, p. 13) "the alpha activity due to Ra226 decay will increase fivefold over the present levels in 100 years". How do you factor in this fact that every monitoring well will grossly exceed drinking water standards in the near future?

A: EPA assesses the 2012 groundwater data as not proving or disproving the existence of a groundwater contaminant plume at the site. For this reason, EPA has requested that the PRPs conduct three additional rounds of groundwater sampling in 2013 which will enable USGS to provide a more comprehensive picture of current groundwater conditions at the site. The increase in radium concentrations due to ingrowth over time discussed by the Nuclear Regulatory Commission (NRC) applies to the solid radiological waste within Operable Unit 1 (OU-1) and does not imply that groundwater concentrations will similarly increase.

Q: If the 2008 ROD *(Record of Decision)* is implemented and West Lake capped, and in a number of years the radioactive material definitively reaches the water table, will the EPA do a new ROD for West Lake? If so, will this be guaranteed legally, and is there EPA legal precedence for this?

A: Regardless of the remedy eventually selected for OU-1, the site will always be a landfill and thus will require groundwater monitoring and Five-Year reviews for the foreseeable future. If future groundwater results definitively demonstrate a contaminant plume at the facility boundary, off-site monitoring wells would be installed as necessary to define the plume and help select a groundwater remedy.

Q: Both the levee and the random high radioactive water samples are no guarantee that radioactive waste is stable in its elevated position in West Lake landfill. Once the radioactive material reaches the water table, the levee gives no protection to groundwater movement toward the Missouri River. Why does the EPA not address the situation at West Lake of ultimate groundwater contamination?

A: Regardless of the remedy eventually selected for OU-1, the site will always be a landfill and thus will require groundwater monitoring and Five-Year reviews for the foreseeable future. If future groundwater results definitively demonstrate a contaminant plume at the facility boundary, off-site monitoring wells would be installed as necessary to define the plume and help select a groundwater remedy. A groundwater fate and transport model is being developed to answer questions pertaining to

groundwater system. USGS will assist EPA in evaluating this model.

Q: What about radiation in the ground water? Would you trust Republic to test for leachate daily? (Fox guarding the henhouse.)

A: EPA has asked the PRPs to do four quarterly groundwater sampling events. The first occurred in July-August 2012, the second in April 2013, the third in July 2013 and a fourth round in October 2013. EPA is collecting its own split samples as part of our oversight of the PRPs. The Missouri Department of Natural Resources (MDNR) is responsible for overseeing Republic's testing of leachate from the Bridgeton Sanitary Landfill.

Q: Will water sampling be taken? Is radiation in the air or water?

A: MDNR has taken air samples around the landfill, and as far as EPA is aware, no elevated levels of alpha emitters have been found. If there are no particulates, the only radionuclide that could be detected in the air is radon. The Missouri Department of Health and Senior Services (MDHSS) has conducted screening for radioactive compounds. It has been determined it does not present a health threat to off-site residents. Information can be found on the MDHSS webpage. EPA has asked the PRPs to do four quarterly groundwater sampling events. The first occurred in July-August 2012, the second in April 2013, the third in July 2013 and the fourth round in October 2013. EPA is collecting its own split samples as part of our oversight of the PRPs.

Formerly Utilized Sites Remedial Action Program (FUSRAP)

Q: What is the honest position of the EPA with West Lake? Would the EPA rather have West Lake turned over to FUSRAP and have the clean-up and removal of nuclear weapons manufacturing wastes the responsibility of the Army Corps of Engineers?

A: This *(placing site under FUSRAP designation)* would require a formal designation by Congress or the Department of Energy. EPA does not participate in this decision process.

Q: To follow up on my previous question of, "Would the EPA rather have West Lake placed under FUSRAP?", please answer (1) why EPA would like to have West Lake placed under FUSRAP, and (2) why EPA would not like to have West Lake placed under FUSRAP.

A: This *(placing site under FUSRAP designation)* would require a formal designation by Congress or the Department of Energy. EPA does not participate in this decision process.

Q: We were told that the only way to get this cleaned up was through Congress and the Dept of Energy. I contacted the Dept of Energy and got this response: "Per my voicemail, it does not appear that the landfill is related to any Department of Energy programs or funds, but I would be more than happy to talk to you and maybe come up with some ideas of where you can turn for assistance. Please give me a call back at the number listed below. As you probably know, we are located in Washington DC and I will be leaving for the weekend in a few minutes. Hopefully we can touch base on Monday. Have a great weekend." I do intend to call her on Monday. My question is, what exactly do we have to do to turn this over to the Army Corps of Engineers/FUSRAP and get the radioactive wastes removed? We, as a community will do our part. But we are in the endless game of 'pass the buck', and it needs to stop. Who do we contact???

A: This *(placing site under FUSRAP designation)* would require a formal designation by Congress or the Department of Energy. EPA does not participate in this decision process.

West Lake Landfill

Q: Why is nuclear waste allowed to be in this landfill, in a flood pain right next to a major river, threatening to contaminate groundwater, and contaminated soil at the surface, REGARDLESS of the fire that is 1000 feet from it?? The fire is the immediate horrific threat, but this facility is not set up for, nor licensed, to have the waste in the first place!! Why is it so hard to make it clear this is not okay to begin with???

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.

Q: If all of the entities are monitoring and collecting data on all of the contaminants (to make sure they aren't posing a threat to people), then why aren't the buried semi-trucks being investigated? You cannot say you are monitoring all of the contaminants when you don't even know what they all are!

A: EPA has no independent information or records to confirm the anecdotal information reported by the media on this issue.

Q: Given the 4.5 Billion year half life of Uranium and the Alpha, Beta, and Gamma radiation historically associated with Congo Pitch Blend from the Manhattan Project, the volatile nature of mixed toxins at the landfill, the "Superfund" designation of the site, and an emergent fire hazard traveling at 1-2 feet per day wouldn't the conservative and prudent action for the EPA to take is to immediately form a joint agency task force - including the U.S. Army Corps of Engineers and move the federally generated Radioactive Waste from West Lake within 500 days? This illegally dumped waste has negatively impacted on the citizens of the St. Louis Area for far too long. In removing the approximately 8,000 tons of Manhattan Project Radioactive Waste what is the estimated time to remove and transport to a federally licensed site away from a major population area and contact with water?

A: Based on the analysis performed in the 2011 Supplemental Feasibility Study (SFS), Table 10 of the SFS indicates the “Complete Rad Removal with Off-site Disposal” alternative would take a minimum of four years to implement, under fully optimal circumstances unlikely to exist.

Q: I would like to know what will happen when the fire from the south quarry comes in contact with the nuclear weapons waste in the north quarry and how do you plan to protect me?

A: EPA internal experts, as well as USGS, are evaluating the current subsurface smoldering event (SSE) data. The PRPs are developing contingency plans to address these issues, and EPA and MDNR are and will be evaluating these contingency plans.

Q: Both of the landfills were never built to hold anything. They were never prepared for sanitary or radioactive material, so how can you make them safe? There is a bottom, that is not prepared to hold any kind of waste. There a bottom, that you do not REALLY know what is happening. You may say YOUR test shows no leaching, but do you really know what crack it is following and where it really coming up. We do know liquid does find its way.

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.

Q: AEC on-site reports from 1974 state that the alleged clean fill soil that is often referenced by the current EPA staff as having been used to dilute the barium sulfate was actually soil that had been removed from Latty Avenue in order to decontaminate it. When FUSRAP took over this site, they reported that, despite the original removal of this 39,000 tons of material, Latty Avenue is so contaminated at a depth of 2 feet that 75% of it has to undergo extensive decontamination. Do you now acknowledge that the correct total for the radioactive materials dumped at West Lake Landfill is really 47,700 tons and not the 8700 tons as quoted in the ASPECT report and other recent EPA documents?

A: EPA is relying on the NRC's report for an accounting of this material. It is likely that the soil removed from the Latty Avenue site and mixed with the barium sulfate residue contained residual amounts of the other radiological wastes stored there. However, it is impossible to say how much radiological material this soil contained or the processes by which the radiological material may have interacted with the soil. EPA has extensive analytical results for the materials actually present in West Lake Landfill, and these results are appropriate for use in remedy selection.

Q: What are the criteria for an Emergency Removal?

A:

Eight Removal Criteria (40 CFR 300.415)

1. Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants;
2. Actual or potential contamination of drinking water supplies or sensitive ecosystems;
3. Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;
4. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;
5. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;
6. Threat of fire or explosion;
7. The availability of other appropriate federal or state response mechanisms to respond to the release; or
8. Other situations or factors that may pose threats to public health or welfare of the United States or the environment.

The Removal Program is designed to address short-term situations. There is a statutory limit of 1 year or $2 million on the response action. Actions typically taken include fences and provision of bottled water.

Q: What is the procedure for a community, Community Advisory Group (CAG), state government agency, fire department, or other entity to request an Emergency Removal Action?

A: EPA has authority to conduct removal actions based on an evaluation of eight criteria set forth in the National Contingency Plan (40 CFR 300.415). This evaluation guides the Agency in determining the appropriateness of a removal action. These response actions are generally limited to shorter term actions (1 year or less) which cost less than $2 million and where there is risk to public health or the

environment. A majority of Region 7's response actions pertain to drums of hazardous substances disposed of improperly, contaminated water supplies, mainly private wells, yards contaminated with lead from historic mining operations and mercury releases where human contact is probable.

The site is presently fenced and does not pose a direct contact threat to members of the public, the drinking water supply is not contaminated, and there is no data to suggest that the community is currently being exposed to radiological contaminants from OU-1. Based on current conditions at OU-1, EPA has not determined this case meets the removal action criteria.

Q: How has the EPA evaluated the health effects of long-term (10-40 years) exposure to the "low, safe" levels of radiation and other contaminants being released into the air daily by the landfills?"

A: There is no data to suggest that the community is currently being exposed to radiological contaminants from OU-1. Therefore, no exposure studies have been performed. MDHSS has taken air samples for alpha, beta and gamma radiation. The results are available on the MDHSS website. Monitoring by the State around the landfill has not shown any radiation levels above background.

Q: What is it going to take to get the nuclear waste removed from the West Lake Landfill? How can this NOT be considered TOP PRIORITY???

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.

Q: Is the Westlake landfill officially on the EPA's federal registry (cleanup)?

A: The site was listed on the National Priorities List (NPL) in 1990.

Q: Based on information on your own website, I am confused why no action is being taken by the EPA themselves. www.epa.gov/osw/inforesources/pubs/orientat/rom3.pdf If you could please tell me how this is not something the EPA can put into action, when this information on your website sure makes it seem as if the EPA cleans up this type of thing all the time. I know that the material was put their illegally, but that is totally irrelevant. It is a federal government issue, and we need to know EXACTLY what steps we need to take for the federal government to clean it up. The underground fire heading towards the radioactive waste IS a ticking timebomb. Our lives are on the line, and according to the EPA, we have less than 400 days before the fire reaches the radioactivity (and will hit methane pockets prior to that, which will also cause explosions).

ALL WE WANT IS THE INFORMATION NEEDED TO KNOW WHO TO CONTACT, WHAT STEPS NEED TO BE TAKEN, ETC. PLEASE tell us what we need to do. Our lives are on the line, and the clock is ticking. Please help us. I am literally begging you – we need guidance to help get this resolved. We will do our part. We want to feel safe where we live. We currently do not feel safe at all, and if you lived here, you wouldn't either. Thank you for your time. **Ex. 6 - Personal Privacy**

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period. EPA internal experts, as well as USGS, are evaluating the current subsurface smoldering event (SSE) data and making recommendations. The potentially responsible parties (PRPs) are developing contingency plans to address these issues, and EPA and MDNR are and will be evaluating these contingency plans.

Q: I am looking at the West Lake Landfill recent preliminary report concerning detectable radiation at the site in various testing units. Could you please also indicate on this form what is considered a safe benchmark, below which there appears little reason for concern providing certain precautions are taken, and above which there is concern? I would need this information for this data to be relevant to me. Thank you.

A: For drinking water, the Maximum Contaminant Level (MCL) for radium is 5 picocuries per liter. However, there is no one drinking the groundwater at the site.

Q: Has there been monitoring of the Westlake employees health from 1973 to the present?

A: EPA is unaware of any such studies. If such a study were to be performed, it would likely be performed by MDHSS.

Buried Truck

Q: Is the EPA going to investigate the possibility of two tractor trailers being buried in the landfill as was reported by Channel 5? It appears this would be very dangerous if they did, in fact, leave the tractors attached to the trailers, and burying them as well. What was in the trailers to make them do this?

Q: Channel 5 News reported last week that 2 semi-trucks were buried in the radioactive section of the landfill under the light of day. Is that true and, if so, what was in the trucks and is there going to be an effort to unearth them to reveal the contents?

Q: Are there any plans to investigate the recent allegations about 2 tractor trailer trucks being buried 50 feet below the surface and where is the subsurface smoldering event in regards to the location of these trucks area said to be buried?

Q: KSDK news aired this segment recently: www.ksdk.com/news/article/383707/70/I-Team-Secrets-beneath-the-Westlake-landfill- I would like to know what you have to say about this, if you have looked into this, or if someone has first hand looked for these trucks filled with god only knows what. There is so many things that don't add up with regard to the landfill in general. We are tired of the blame game. We are worried about our health-we want the hazardous wastes removed. My question is, what are you doing about this particular situation?

A: *(For all four questions above):* EPA has no independent information or records to confirm the anecdotal information reported by the media on this issue.

Flood/Earthquake

Q: Since portions of OU-1 would be under 2 to 3 feet of flood waters if the Earth City Levee were to breach in a flood of the level seen in 1993, and the landfill is currently protected from flooding by a 500-year levee and supporting flood control system managed around the clock by A.M.C.I. Flood Plain Management assisted by professional engineering firms and not by the Army Corps of Engineers or the EPA, what authority do you have to insure that this levee is properly maintained and updated given that we are seeing ever increasing flood levels that will move the definition of a 500 year flood and require this levee to be updated or even rebuilt?

A: As EPA has stated previously, the cap-in-place remedy selected in the 2008 OU-1 Record of Decision (ROD) does not depend on the integrity of the Earth City Levee system. Portions of the toe of the OU-1 Area 2 radiologically-contaminated cell would be armored with rip-rap (large boulders) to prevent erosion of the cap in the event that the levee failed or was overtopped by a "greater-than-500-year" flood event.

Q: I am writing to beg you to remove the radioactive material from the West Lake Landfill. It is impossible to know how it might be affected in case of an earthquake or major flood, and it may already be leaching into the water that my children drink every day. It is not right that people were victimized first by the corrupt businesses who put the material there and are now being further victimized by the government's reluctance to remove it. Improperly buried radioactive material is not acceptable anywhere, but in a residential area and flood plain in an earthquake zone, the risks are multiplied. Please remove it.

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.

Bridgeton Landfill Subsurface Reaction

Q: Since landfill fires can start spontaneously from unknown causes, if this fire is put out, what will prevent another fire from starting even closer to the nuclear weapons waste?

A: Landfill fires can start spontaneously and no one can guarantee with 100% certainty that another underground fire or subsurface smoldering event (SSE) couldn't occur. Regular monitoring of wellhead temperatures and carbon monoxide levels at the landfill gas collection system in the north quarry has not detected any evidence of any such events. MDNR is currently reviewing Republic's North Quarry Contingency Plans to evaluate, with EPA's assistance, a number of technical issues associated with the type, location and reasons for construction of a an isolation break.

Q: Since landfill fires can start spontaneously from unknown causes, if this fire is put out, what will prevent another fire from starting within the nuclear waste?

A: Landfill fires can start spontaneously and no one can guarantee with 100% certainty that another underground fire or SSE couldn't occur. Regular monitoring of wellhead temperatures and carbon monoxide levels at the landfill gas collection system in the north quarry has not detected any evidence of any such events.

Q: Do any of the radioactive elements become airborne if the fire reaches them?

A: There are contingencies being developed to keep the SSE from impacting OU-1. EPA continues to assess the situation and monitoring by the State around the landfill has not shown any radiation levels above background.

Q: How do we know there is not a "subsurface smoldering event" occurring in the nuclear waste portion of the landfill?

A: EPA presently has no data or any other indication that there is a SSE anywhere in OU-1.

Q: The barrier wall should be done ASAP to wall off the fire. The consultant has seen these issues and has made a reasonable recommendation.

A: MDNR is currently reviewing Republic's North Quarry Contingency Plans to evaluate, with EPA's assistance, a number of technical issues associated with the type, location and reasons for construction of an isolation break.

Q: Please explain exactly what would be the additional pathways of potential contamination should the fire enter the mixed wastes?

A: EPA internal experts, as well as USGS, are evaluating the current SSE data and make recommendations. The PRPs are developing contingency plans to address these issues, and EPA and MDNR are and will be evaluating these contingency plans.

Q: What is the worse scenario if the fire hits the hits the nuclear/radioactive waste?

A: MDNR is currently reviewing Republic's North Quarry Contingency Plans to evaluate, with EPA's assistance, a number of technical issues associated with the type, location and reasons for construction of an isolation break.

Community

Q: Has (or will) the EPA considered in its Record of Decision the impact on property values and quality of life for those living, working and owning property in the adjacent areas?

A: EPA's feasibility study requirements do not include consideration of the impact of property values; however, the Office of Solid Waste and Emergency Response (OSWER) program has commissioned studies on property values. They may be reviewed at www.epa.gov/superfund/accomp/benefits.htm.

Q: Property tax assessments have been raised for Maryland Heights and Bridgeton even though the landfill situation obviously devalues the properties in this area and makes residences nearly impossible to sell. What actions are being taken to rectify this inequality? How will homeowners be compensated for this assault on their property values? Are you prepared for the resultant ghost town if some adjustments aren't made, and soon?

A: EPA's feasibility study requirements do not include consideration of the impact of property values; however, the Office of Solid Waste and Emergency Response (OSWER) program has commissioned studies on property values. They may be reviewed at www.epa.gov/superfund/accomp/benefits.htm.

Q: The meeting that was held tonight was unacceptable. I know you think you are just doing your job but this needs to be passed to the people that can really do something other than study the situation. You have had 40 years to study. It is time to take action. We don't want to be your experiment. We don't want any more studying. We want you to remove the material and put it in a proper area and properly contained. You don't seem to feel the pain and you don't seem to care. You are just doing your job. Your job is to study. Our job is to protect our health, children, environment, home values. Move this on to the agencies that will do something and do it now. **Ex. 6 - Personal Privacy**

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.

Q: What option do we have if we can't get this waste moved out of this area? We won't be able to sell our homes and the damage to our health is already done. I have asthma.

A: EPA's feasibility study requirements do not include consideration of the impact of property values; however, the Office of Solid Waste and Emergency Response (OSWER) program has commissioned studies on property values. They may be reviewed at www.epa.gov/superfund/accomp/benefits.htm.

Q: Dear Mr. Brooks,

First of all, I want to thank you for meeting with the worried and frightened people of Bridgeton, St. Charles, Hazelwood, Florissant and Maryland Heights over the issue of the West Lake Landfill. I realize that this was a difficult night for all. I do truly believe that your panel sincerely tried to meet the expectations of those assembled, and in many respects that did happen. I would hope that we could all have a civil and mutually respectful dialogue about the dizzying array of events and information that is floating around so that we all could be looking at the same constellation of issues and come to support each other as we earnestly seek the best answers to such a muddle of stark issues.

My sense is that you, though eminently qualified for your role, came to it while this West Lake issue was emerging, the same time when many of the local residents were just beginning to sense concern and just beginning to realize what was in their midst. Surely the Fukishima disaster only heightened the emerging anxiety over things nuclear.

I don't know if it is too late to begin again with those who are most suspicious of EPA and its operations. Some redemption would be good for you, for EPA and for the local concerned residents. If I heard rightly the other night, it sounded like the series of studies upon which decisions going forward would be based would need to begin again. I know this was a stunning disappointment for many that only heightened discredit for EPA and those it is working with.

I hope that when this series of studies is conducted, all the right players are at the table: DOE-OEM, EPA, the Army Corp of Engineers, Air quality experts, landfill fire experts, State, county and local health experts, ground water experts, geologists, Republic, and a mix of reasonably informed residents. (While this latter thought may be difficult, in the end it is to your overall advantage.)

Facilitation of meetings such as took place June 25th would be difficult under the best circumstances. When one expects a rather tense gathering of this size, one 'facilitator' racing madly around the room is woefully inadequate. Hire a team of facilitators who can work together. Get the agenda out ahead of time and make it jointly planned so that those most invested – because they live or have their businesses there – feel a part of the direction of the evening. Many of the residents that attended are elderly. If you are planning on having the attendees physically move locations, let them know that in advance. Access into this building would be easy for the able, but for those whose movement abilities are somewhat compromised, going back and forth would be difficult. I knew several who didn't feel that they could go back and forth.

And finally, please position yourselves on the stage so that we can all see you.

These are just some suggestions that would help these kinds of meetings. What would help most of all, though, is some attempt to jointly plan such an event. This probably defies the laws of most bureaucracies, and it would take courage to comport oneself so, but since things are at a beginning over

point, you really have nothing to lose and everything to gain – including the respect of the local citizenry. It would be a surprise to everyone! And welcome!

Ex. 6 - Personal Privacy

A: Thank you very much for taking the time to provide specific suggestions for EPA's Public Affairs Office to consider in planning future meetings.

Airborne Spectral Photometric Environmental Collection Technology (ASPECT)

Q: In the Gamma ASPECT Area 2 Summary, it is stated that Uranium-238 was not figured into the algorithm because the "original ore was chemically separated from the rest of the decay products." It is reported in West Lake documents that 8700 tons of uranium is in West Lake. Why is this not being factored into the ASPECT plane readings if it does exist in the landfill area of Area 2? Since the statement is tempered by "most likely represents radium," it is not absolutely certain that this assumption is true. What will EPA do to confirm this supposition to keep Uranium-238 out of the algorithm to determine results, and will this document be modified by any future corrections of the algorithm formula for which ASPECT readings' accuracy is determined.

A: The ASPECT airplane measures gamma radiation from Bismuth-214 which is a decay product of Uranium-238, because Uranium-238 is not a strong gamma emitter. In this survey, Bismuth-214 most likely indicates the presence of Radium-226 (another decay product of Uranium-238) rather than Uranium-238, since the uranium was separated from its decay products by the ore processing done by Mallinckrodt. Because uranium and its decay products are not in their natural equilibrium, an algorithm to directly calculate uranium concentrations (as is normally done) could not be used, so an alternative algorithm to calculate radium concentrations was used instead. No corrections are needed to this alternative algorithm.

Q: During the first week of March 2013, there were multiple precipitation events of snow/rain/fog, some trace. However, on March 5, 2013 there was 0.25 inches of rain and on March 8, the date of the ASPECT flyover, there was trace rain and 23 mile/hr wind gusts. For the last week of February 2013 there was 1+ inch of rain, and the first week of March there was 0.27 inches with trace to some precipitation every day of the 1st week of March. Why has the EPA not mentioned these weather conditions of soil moisture in its summary, since precipitation reduces the measurement ability for gamma radiation?

A: The ASPECT report does discuss soil moisture due to recent snow melt in Appendix II. Soil moisture can be a significant source of error for gamma ray surveying with the ASPECT airplane. Although there was no significant precipitation during the flyover, the ground was likely saturated from recent snow melt. However, the ASPECT report presented the data to show the relative difference between measurements so the error from soil moisture could be minimized.

Q: In the ASPECT flyover report for West Lake, charts and explanations for U-238 are inserted, and demonstrations of the presence of U-238 in background rock and construction materials. However, no mention is made of the U-235 which came from Africa and which is the source of this landfill's radioactive waste. How can the toxicity of U-235 (60-65% pure), which was processed at a time of less scientific controls and containment, be unmentioned in this EPA report about West Lake?

A: U-235 is an isotope of uranium that is found in all natural uranium ores, and represents approximately 0.7% of the mass of natural uranium. The remaining natural uranium is made up of the isotope U-238 (approximately 99.3%). Mallinckrodt processed natural uranium ores. The toxicity of uranium is based on natural uranium, not on the individual isotopes.

Q: In the ASPECT gamma flyover for West Lake, mention is made of obtaining background readings by a high-elevation test or a flying over a body of water. Which method did the EPA use? If this body of water was the Missouri River, which contains less than 15 pCI/L in "drinking water" samples for gross alpha/uranium, were readings from water companies referenced or EPA water testing of the Missouri River to ensure background is accurate given the River's history of Weldon Spring contamination.

A: Section 5.1 of the ASPECT report states that background readings are ideally collected over water if a large body of water exists nearby. In the case of West Lake, there is no nearby large body of water, so the "test line" for background readings was taken at 3,000 feet above ground level near Cora Island, northeast of the site.

Q: In comparison with the 2006 EMSI Feasibility Study which shows downhole measurements for gamma above 500,000 cpm and individual radionuclide readings above 1000 pCi/g, how does the 6+ gamma reading compare? Also this 2006 FS shows these highest levels of gamma in the lower toe section of Area 2, but in the ASPECT study the 5 and 6 sigma readings are higher geographically, and mostly in the upper-wider portion of the Area 2 landfill. How does the EPA account for the highest readings to be in different locations, irrespective of the sampling technique?

A: The excess radium sigma results in the ASPECT report cannot be directly compared to the down-hole gamma measurements reported in the feasibility study. ASPECT uses a spectrometer which measures gamma radiation specifically from Bismuth-214, while the down-hole gamma measurements reported in the feasibility study used a simpler detector that responds to all gamma radiation regardless of its source. The ASPECT airplane could only measure gamma radiation from the upper one foot of the soil, while the down-hole gamma measurements could measure gamma radiation from all depths within each borehole that was measured.

Q: What is the cause for the greater than +6.0 sigma values for Excess Bismuth-24 in OU-1 Area 2 from the ASPECT survey on flyover on March 8, 2013? This is also the same area that was discussed on the local news channel 5 broadcast about 2 mysterious tractor trailers that were abandoned in place.

A: The elevated sigma values for excess Bismuth-214 in the ASPECT report are due to radiologically-contaminated soil within one foot of the surface of OU-1 Area 2. The ASPECT airplane cannot detect gamma radiation from deeper than one foot because the upper foot of soil blocks the radiation from deeper soil.

Remedy Selection

Q: The fire control expert for MDNR published a report dated June 17, 2013 in which he calls for erecting a fire wall between the South Quarry and the North Quarry if the fire has not already spread there. This is to both control the fire and protect the nuclear weapons waste in Area 1. He notes that this recommendation was also made in January 2013, but was rejected by the landfill operator. Building a wall would most likely mean digging into the garbage in the North Quarry, which is significantly more toxic and dangerous than the South Quarry because it was in operation before any landfill regulations

existed and has a history of chemical and other wastes being deposited there. Please comment on the relative safety of removing Area 1 vs. digging some 60 feet plus into the garbage (minimum of 60 feet to reach bedrock, deeper depending on where wall is placed). Please include risk potential of additional spontaneous fires erupting in or near Area 1 independent of extinguishing the current fire, the risk of releasing more benzene, dioxin, etc. into the community, and the increased respiratory discomfort and loss of use of one's home due to the stench and toxins in the air in your answer.

A: Landfill fires can start spontaneously and no one can guarantee with 100% certainty that another subsurface smoldering event (SSE) couldn't occur. Regular monitoring of wellhead temperatures and carbon monoxide levels at the landfill gas collection system in the north quarry has not detected any evidence of any such events. EPA internal experts, as well as USGS, are evaluating the current SSE data. The potentially responsible parties (PRPs) are developing contingency plans to address these issues, and EPA and MDNR are and will be evaluating these contingency plans.

Q: The Supplemental Feasibility Study of September 2011 recommends against building a containment wall between Area 1 and the North Quarry. The DNR's expert is recommending a wall be built there if the fire reaches the North Quarry. Are you working with MDNR on this, and if so, what has happened that has changed your original conclusion in the SFS that a wall would not work?

A: The 2011 Supplemental Feasibility Study (SFS) discusses the general issues with excavating landfill waste, particularly the restrictive covenant placed on the property at the request of the Lambert-St. Louis Airport. The SFS does not discuss building a containment wall between Area 1 and the North Quarry. EPA remains in close contact with the Missouri Attorney General's office and MDNR, the lead regulatory agency responding to the smoldering event. This Agency will continue to work with these agencies, as well as the Bridgeton PRPs, as contingency plans and trigger levels are developed.

Q: What is the tornado F rating for the cap that was proposed in 2006?

A: Landfill caps do not have "tornado F rating[s]". However, EPA has asked the PRPs to qualitatively assess potential tornado damage to the cap selected in the 2008 Record of Decision (ROD) remedy.

Q: Are there any examples of a cap of the design that was proposed in the ROD of 2006 withstanding a direct hit by a tornado of F4 or better?

A: EPA is unaware of any such examples. However, EPA has asked the PRPs to qualitatively assess potential tornado damage to the cap selected in the 2008 ROD remedy.

Q: The published 2008 ROD has several instances where dust and rainwater pathways were considered "not significant" because of vegetation cover. With the several overhead pictures there seems to be several brown/dirt looking areas. With last year's drought and severe weather in the area, how is vegetative cover being handled?

A: In order to be exposed to contaminants, there needs to be an exposure route. Since the site is fenced and the closest residence is approximately ½ mile from the landfill, we do not anticipate any exposure to surface dust. In addition, MDNR and MDHSS are conducting routine sampling and all the results are posted on their websites. The MDNR results to date for radiation sampling show that upgradient and downgradient samples are consistent with background levels of radiation. One sample was taken at a

private residence south of the site. Refer to the MDNR sampling results dated 5/16/2013 for more specifics.

Q: At what point does the current plan become void and the immediate removal of toxics and nuclear waste become the plan?

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period. EPA internal experts, as well as USGS, are evaluating the current SSE data. The PRPs are developing contingency plans to address these issues, and EPA and MDNR are and will be evaluating these contingency plans.

Q: When will the nuclear waste be removed?

A: EPA is re-evaluating alternatives and will issue a new proposed plan with a new public comment period.